

REMARKS

Claims 1-20 are now in the application. Claims 3-11 and 13-20 have previously been withdrawn by the Examiner. No new matter has been added by this Response.

Claims 1, 2, and 12 have been rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent No. 5,827,508 to Tanner et al. in view of U.S. Patent No. 4,640,943 to Meguro et al. and U.S. Patent No. 5,939,518 to Mazo et al.

Claim 1 recites, among other features, that a surface modification comprises a coating with polyasparaginic acid with molecular weight M_w of from 1000 to 100 000. At least this feature of claim 1 cannot reasonably be considered to be suggested by the applied citations.

Tanner is directed to a dibenzoylmethane sunscreen compound which contains silicone surface-treated zinc oxide. Despite disclosing a large number of possible coating materials for zinc oxide, Tanner fails to suggest polyasparaginic acid. This is acknowledged by the Office Action on page 4. However, at page 6, line 21 to page 7, line 3, the Office Action asserts that Tanner nowhere limits the use of amino acids to un-polymerized, i.e., monomeric, amino acids. However, it is not a requirement that Tanner teach away from polyasparaginic acid. Rather, the application of this citation fails because Tanner does not suggest the above-quoted claim feature.

The Office Action further asserts that Tanner would have to limit the use of silicon-containing compounds to elemental silicon instead of dimethicone to support Applicants' arguments set forth in the June 11, 2008 Response. Applicants respectfully submit that dimethicone is a polymer comprising $[\text{SiO}(\text{CH}_3)_2]$ units, which is obtainable by reacting dichlorodimethylsilane and water. Elemental silicon, Si, is not the starting material for dimethicone. Further, Tanner does not disclose monomeric $[\text{Si}(\text{OH})_2(\text{CH}_3)_2]$ - nor elemental silicon for that matter - as a surface coating. Thus, Tanner could likewise not be used for a teaching of monomeric $[\text{Si}(\text{OH})_2(\text{CH}_3)_2]$. Where Tanner means to refer to polymers it does so specifically, for example at col. 8, lines 17-24. Silicone, however, is not a monomer of a polysilicone. Instead, both terms are used interchangeably for polymers comprising $[\text{Si-O}]$ repeating units.

It is duly noted that polyasparaginic acid and aspartic acid differ in virtually every physical and chemical property such as melting point, molecular weight, and solubility, to name a few. Simply because aspartic acid can be polymerized is insufficient for a finding of support of polyasparaginic acid in Tanner which only suggests the monomer.

Meguro is directed to a method of modifying surfaces of inorganic substances by coating with monomeric, N-acylated, basic amino acids, especially N-acyl lysine. In the prior art section of Meguro, it is mentioned that polyaspartic acid was used in the past for improving the wettability of inorganic fillers. However, Meguro, at col. 2, lines 39-47, teaches away from using polymers for surface modification. Specifically, Meguro suggests that polymer coats on inorganic substances can swell or dissolve and separate from the surface. Thus, a skilled artisan would not look to Meguro, which suggests monomeric N-acyl lysine to modify Tanner, which suggests monomeric aspartic acid, by using polyasparaginic acid instead of aspartic acid because Meguro teaches that polymeric coatings can swell or dissolve and separate.

The Office Action relies on Mazo for suggesting manufacturing polysuccinimide with desirable high molecular weight, see col. 1, lines 41-42, of Mazo, which is in the range of 10,575 to 17,231, col. 5, lines 28-48. Mazo suggests that polysuccinimide, polyaspartes and copolymers thereof are useful, for example, as lubricants for conveyor belts. The desirable molecular weights suggested in Table II of Mazo are desirable molecular weights in the production of polysuccinimide. However, Mazo fails to suggest that the molecular weights are desirable for a polyasparaginic acid coating of a metal oxide nanoparticle, as claimed.

Claims 1, 2, and 12 have been rejected under 35 U.S.C. §103(a) as being unpatentable over U.S. Patent Application Publication No. 2004/0033270 to Kropf et al. in view of Mazo.

The Office Action asserts that the surface modifiers suggested in Kropf can reasonably be considered to correspond to surface modification comprising a coating as recited in claim 1. This assertion is incorrect. Kropf suggest hygiene products comprising surface-modified zinc oxide. In particular, Kropf suggests that zinc oxide is modified with stearic acid. Kropf further suggests, at paragraph [0039], that the surface modifiers disclosed therein are not coatings in the sense that

the nano-sized particles are completely covered, but that Zn ions can be released into the surrounding area. In other words, Kropf suggests vehicles that allow distribution of zinc ions into the hygienic product. Thus, Kropf is specifically not directed to a coating, as claimed.

The Office Action applies Mazo for suggesting manufacturing polysuccinimide with desirable high molecular weight. Mazo is not applied in a manner to cure the deficiencies of Kropf noted above. In addition, the application of Mazo fails for the same reasons as the application of Tanner in view of Meguro and in further view of Mazo discussed above.

In view of the above, Applicants believe the pending application is in condition for allowance.

Applicants concurrently herewith submit the requisite fee for a Petition for a one-month Extension of Time. Applicants believe no additional fee is due with this response. However, if any additional fee is due, please charge our Deposit Account No. 22-0185, under Order No. 12810-00346-US1 from which the undersigned is authorized to draw.

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Respectfully submitted,

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